

Construction Guide Specification for Emulsified Asphalt Chip Seals

<p>Specification AASHTO Construction Guide Specification 406</p>	<p>Author AASHTO COMP Technical Subcommittee 5b</p>
<p>Description This guide specification is intended to provide information needed for owners or contractors to construct emulsified asphalt chip seals. An emulsified asphalt chip seal is the application of emulsified asphalt, followed immediately by a single layer of aggregate chips to a prepared surface.</p>	<p>Terminology The terminology in this specification covers the different grades of asphalt emulsion. Specifically the names, additives, and governing standards for different grades.</p>
<p>Construction <u>Equipment:</u> Asphalt Distributor, Aggregate Spreader, Pneumatic-Tire Rollers, Broom. <u>Equipment Calibration</u> Tolerance and methods of calibrating distributors and aggregate spreaders. <u>Preconstruction Meeting</u> Importance of a preconstruction meeting prior to construction to discuss specific topics listed. <u>Road Surface Preparation</u> Sweep pavement no more than 30 min before application of emulsion and aggregate. Remove thermoplastic pavement markings. <u>Application</u> Addresses topics: Weather limitations, test strips, and the application of the materials; longitudinal and transvers joint construction methods; rolling and sweeping operations; traffic control and protection of motor vehicles; and fog seals. <u>Quality Control</u> Outline of roles for quality staff, testing facilities, stockpile management, calibration and workmanship. Requires certification of crew members. <u>Agency Acceptance Activities</u> Inspection overview, materials acceptance testing, and final inspection recommendations.</p>	<p>Materials</p> <ul style="list-style-type: none"> • Emulsified Asphalt: That meet the requirements of AASHTO M 140, M 208, & M 316. • Aggregate: Gradations described in AASHTO MP 27 Tables 1 and 2.
	<p>Measurement</p> <ul style="list-style-type: none"> • Emulsion by volume • Aggregate by area (or weight) • Completed Chip Seal by area • Fog Seal Emulsion by volume
	<p>Payment Payment for chip seals can be done by either paying for the materials in unit costs, or for the completed chip seal by area of pavement sealed. Unit price examples: Emulsified asphalt (gal), Aggregate (sq.yd.), Aggregate (tn), Chip Seal (sq.yd), diluted emulsion for fog seal (gal)</p>
<p>Deal breakers and no fly zone Top keys that are critical to a successful project:</p> <ol style="list-style-type: none"> 1. Aggregate gradation and quality specs met 2. Conduct mix design 3. Perform calibration 4. Weather requirements are met 5. Incorporate a QA/QC program into spec 6. Trained (certified) inspector & contractor staff 	<p>Points to Understand</p> <ol style="list-style-type: none"> 1. Aggregate dust above the limits inhibit bond between the chips and the asphalt emulsion. 2. Slower setting emulsions take much longer to cure thus sweeping and traffic must be delayed. 3. Rounded aggregate is difficult to bond with asphalt emulsion in chip seals. 4. First roller pass within two minutes, limit roller speed to 3 mph maximum. 5. Longitudinal spray rate of emulsion is verified through calculation of tank volume and area of application. 6. Aggregate spread is verified checking truck weight and dividing by the area covered. 7. Aggregate gradations from both the stockpile and hopper ensure the aggregate quality on the project. 8. Quick checks of application rates (volume of emulsion/area & weight of aggregate/area) are recommended ~4 times a day. 9. Ambient and pavement temperatures both need to meet requirements.
<p>Referenced Documents AASHTO: M 140, M 208, M 316, MP 27, PP 82, T 27, T 49, T 50, T 59, T 96, T 301, T 335 AASHTO 10th Edition of Guide Specifications for Highway Construction ASTM: D5624 The Asphalt Institute: Manual Series 19 Texas DOT: Tex-224-F NCHRP: Report 680</p>	